

REMARKS

Favorable reconsideration of the present patent application is respectfully requested in view of the following remarks. Claim 13 is amended herein, claim 14 is canceled, and no claims are added. As a result, claims 1-7, 12-13 and 15-26 are pending in the application.

In the Office Action of September 7, 2005, claims 1-2, 7, 12-18 21-22 and 25-26 are rejected under 35 U.S.C. §103(a) in view of U.S. Patent 6,087,701 (Bergstrom) and further in view of U.S. Patent 6,014,240 (Floyd). Claims 3-6, 19-20 and 23-24 are rejected under 35 U.S.C. §103(a) in view of Bergstrom and further in view of Floyd and yet further in view of U.S. Patent 5,501,990 (Holm). These rejections are respectfully traversed.

§103 Rejection in view of Bergstrom / Floyd

It is respectfully submitted that the pending §103 rejection of claims 1-2, 7, 12-18 21-22 and 25-26 in view of the Bergstrom / Floyd hypothetical combination cannot be maintained, for at least the following reasons.

The Office Action relies upon the Bergstrom patent, noting that Bergstrom fails to teach a display element formed on a semiconductor substrate. The Office Action then cites the Floyd patent, contending that Floyd overcomes the deficiencies of the Bergstrom patent. In particular, the Office Action appears to contend that the Floyd patent teaches “a semiconductor visual display element formed on the semiconductor substrate,” as recited in claim 1. This contention is respectfully traversed.

The specification of the present application discusses exemplary distinctions between an element which is formed separately and then incorporated on a substrate versus an element which is formed on a substrate:

Each of the individual functions (the sensor element 10, the logic circuit 8, and the visual display element 6) were formed on the support or substrate 4 directly or formed on a temporary support element and transferred to the support substrate 4.¹

This passage, taken along with other disclosure in the specification, distinguishes between elements which are formed on the substrate itself (for example, as per claims 1, 12 and 13) or formed on a temporary support element and transferred to the support substrate (as per the Floyd patent). The formation of an individual element on a substrate by imaging of the same photosensitive layer, or other disclosed or equivalent types of formation, are examples of what is meant by the claim language “formed on the semiconductor substrate.” Claim 1 recites “a semiconductor visual display element formed on the semiconductor substrate.” Claim 12 recites “a semiconductor light emitting visual display element formed on the semiconductor substrate.” Claim 13, as amended, recites “a semiconductor visual display element formed on the substrate.” The Floyd patent does not teach these features.

The device described in the Floyd patent has laser diodes 105 which are bonded onto a silicon substrate 101 which also has a MEMs device on it. It should be noted that the laser diodes 105 are separately manufactured and then bonded onto the silicon substrate 101. The laser diodes 105 of Floyd are not formed on the silicon substrate 101. This can clearly be seen in Figure 1 of Floyd, reproduced below, which shows the laser diodes 105 bonded onto the silicon substrate 101 with solder bumps 110. Consequently, the Floyd patent does not overcome the deficiencies of the Bergstrom patent.

¹ Specification, paragraph 28 (page 8 of originally filed hardcopy of application).

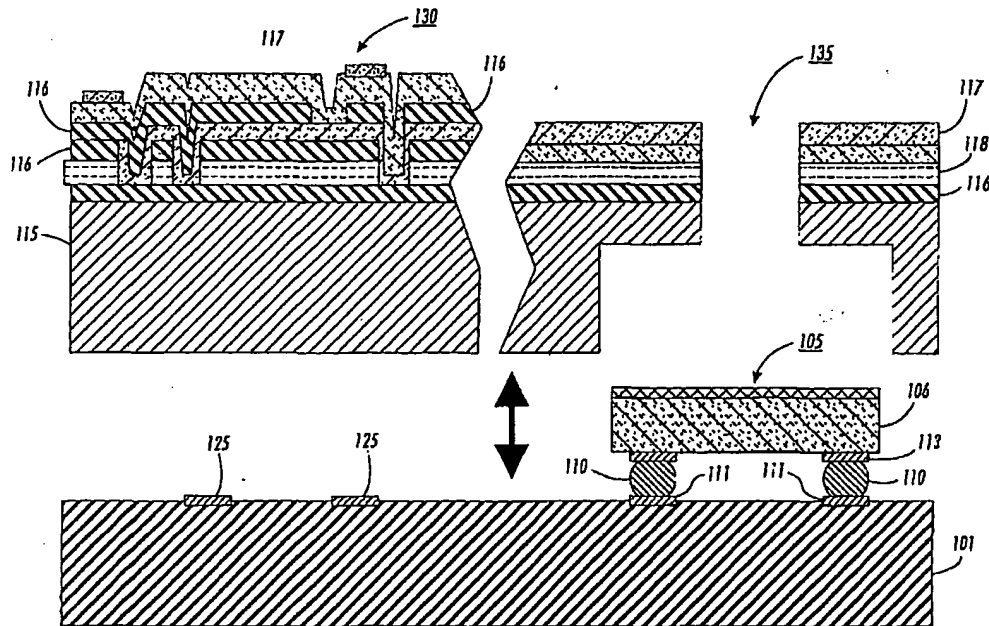


FIG. 1

As for claims 25 and 26, these claims involve a visual image of the condition sensed by the moveable microengineered input element formed on the substrate. For example, claim 25 recites “wherein the visual image is a visual representation of the sensed condition.” Claim 26 recites “wherein the visual display element provides a visual image comprising a visual representation of the sensed condition.” The Floyd patent involves a moveable microengineered input element in the form of a silicon deflecting mirror 240 that deflects light from the light source, laser diodes 105. The laser diodes 105 of the Floyd patent do not pertain to a sensed condition of the silicon deflecting mirror 240.

Accordingly, the Bergstrom patent and the Floyd patent, either taken singly or as a hypothetical combination, do not teach or suggest the features of the claimed invention.

Withdrawal of the rejection is respectfully requested.

The Floyd Patent Teaches Away from the Hypothetical Combination

The Manual of Patent Examining Procedure (MPEP) provides direction for when it is proper to combine references and when a combination is improper. Under the standard set forth for examination in the MPEP, “[i]t is improper to combine references where the references teach away from their combination.”² It is respectfully submitted that the Floyd patent teaches away from the hypothetical combination proposed by the Office.

According to the Floyd patent it is beneficial to provide the micromechanical element on a substrate separate from the substrate of the semiconductor visual display element. In fact, Floyd expressly states that “[s]eparation of the micro-electromechanical systems and light emitters on separate substrates allows the use of flip-chip and solder bump bonding techniques for mounting of the light sources.”³ The Floyd patent also states that the reflowed solder allows the laser substrate 106 to self-align with carrier substrate 101.⁴ Hence, the Floyd patent not only fails to teach “a semiconductor visual display element formed on the semiconductor substrate,” as recited in claim 1, the Floyd patent appears to teach away from this feature.

Accordingly, it is respectfully submitted that the Floyd patent teaches away from being combined with the Bergstrom patent, making the hypothetical combination of these two patents improper. Withdrawal of the rejection is requested.

§103 Rejection in view of Bergstrom / Floyd / Holm

It is respectfully submitted that the pending §103 rejection of claims 3-6, 19-20 and 23-24 in view of the Bergstrom / Floyd / Holm hypothetical combination cannot be maintained, for at least the following reasons.

² MPEP 2145(X)(D)(1) at page 2100-162, citing *In re Graselli* (218 USPQ 769, 779).

³ Floyd, Abstract.

The Holm patent involves a high density LED array composed of several layers of materials stacked on a substrate. The Holm patent is cited in the Office Action to purportedly teach various features of dependent claims 3-6, 19-20 and 23-24. Without addressing whether or not the Holm patent actually teaches the features of the dependent claims for which it is relied upon, it is respectfully submitted that Holm does not overcome the deficiencies of the hypothetical Bergstrom / Floyd combination. For example, the Holm patent does not teach or suggest “a semiconductor visual display element formed on the semiconductor substrate,” as recited in claim 1, or “a semiconductor light emitting visual display element formed on the semiconductor substrate,” as recited in claim 12, or “a semiconductor visual display element formed on the substrate,” as recited in claim 13.

Accordingly, the Bergstrom patent, the Floyd patent and the Holm patent, either taken singly or as a hypothetical combination, do not teach or suggest the features of the claimed invention. Withdrawal of the rejection is respectfully requested.

⁴ Floyd, col. 3, lines 10-15.

Deposit Account Authorization / Provisional Time Extension Petition

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 50-0439 and please credit any excess fees to such deposit account.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. However, should there remain any unresolved issues, the Examiner is kindly invited to contact applicant's representative, Scott Richardson, at telephone number 1.703.739.0573 so that such issues may be resolved as expeditiously as possible.

Respectfully submitted,



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